Massachusetts Military Reservation Cleanup Team (MMRCT)
Building 1805
Camp Edwards, MA
December 9, 2009
6:00 – 8:00 p.m.

Meeting Minutes

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Handouts Distributed at Meeting:

1. Responses to Action Items from the October 14, 2009 MMRCT Meeting
2. Presentation handout: Fuel Spill 28 Plume Update
3. Presentation handout: J-1 Range Source Area Update
4. Presentation handout: J-2 Range Environmental Monitoring Update
5. Info sheet: Contaminants of Concern
6. MMRCT Cleanup Team Meeting Evaluation form

Agenda Item #1. Introduction and Agenda Review, Approval of October 14, 2009 MMRCT Meeting Minutes, Other

Mr. Field convened the meeting at 6:03 p.m., reviewed the agenda, and asked if there were any additions or corrections to the October 14, 2009 Massachusetts Military Reservation Cleanup Team (MMRCT) meeting minutes. No changes were offered and the minutes were approved as written. Mr. Field also confirmed that there were no comments on the Responses to Action Items from the October 14, 2009 MMRCT meeting.

Ms. Curley reported that Community Involvement (CI) staff from the Impact Area Groundwater Study Program (IAGWSP) and the Installation Restoration Program (IRP) have been directed to look into producing either a combined Groundwater Findings and Plume Booklet or two separate documents. She noted that the CI group will develop some proposals to be presented to the Remedial Project Managers (RPMs) at their meeting next month, after which the MMRCT will be informed of the schedule for issuing the document(s).

Mr. Field asked if there were any comments on the MMRCT Groundrules document that was emailed to team members and made available as a hard copy at tonight's meeting. No comments were offered.

Mr. Davis announced that the new wind turbine (located behind the landfill 1 [LF-1] treatment plant) became fully operational on December 2, 2009.

Agenda Item #2. FS-28 Update

Mr. Tindall reminded the group that Fuel Spill 28 (FS-28) is an ethylene dibromide (EDB) plume located within the town of Falmouth, south of the Massachusetts Military Reservation (MMR). He noted that FS-28 is made up of the main body of the plume and three leading edge lobes – a deep lobe, a shallow lobe, and a small lobe that upwells into a cranberry bog adjacent to the Coonamessett River. He also reported that in 1997 a deep extraction well was installed to remediate the main body of the plume. In 1999, after more characterization data were collected, a shallow well-point system was installed in the area where the plume was upwelling to the bog network. In December 2007, after the deep leading edge lobe was fully characterized, a second extraction well was installed. Mr. Tindall noted that water extracted by these systems is pumped to a centralized treatment plant located on Town of Falmouth conversation land, and the treated water is discharged to the Coonamessett River system via two bubblers.

Mr. Tindall then stated that the plume, which is detached from an unidentified source area, has migrated from a base location south to the Hatchville area of Falmouth. EDB, which is the contaminant of concern (COC) in the plume, has a Massachusetts maximum contaminant level (MMCL) of 0.02 micrograms per liter (µg/L). The maximum EDB concentration in 2009 was 1.38 µg/L and the historical maximum EDB concentration was 15 µg/L.

Mr. Tindall then noted that the treatment plant is processing about 600 gallons per minute (gpm), with the original deep extraction well, extraction well 1 (EW-1) pumping at 550 gpm, and the new extraction well (EW-2) pumping at 50 gpm. He explained that the shallow well-point system, which began operating in April 1999, was turned off in December 2008 as the system had done its job and it was determined that there was no benefit in continuing to operate it. He also mentioned that, like the remnants of the plume in the shallow well-point system area, the shallow leading edge lobe that was characterized in the 2004/2005 timeframe is undergoing long-term monitoring due to the very low contaminant concentrations in that area. He noted that in fact there are no longer any MMCL exceedances in the shallow lobe.

Mr. Tindall further noted that there's no current risk of exposure to the plume, with residences in the immediate area having been connected to town water, beginning around 1997. He also mentioned that the IRP has undertaken a Private Well Verification Program as part of its Land-Use Controls (LUCs) program. Mr. Tindall then reported that for the past three years no EDB has been detected in the river system, although in the past (1997-1999) EDB detections in surface water have prevented the marketability of the cranberries from bogs north of Sandwich Road. With one exception – a small bog off of Turner Road which wasn't harvested in 2005 due to a low EDB detection in surface water at that time – the cranberries have been harvested since 2000.

Mr. Tindall stated that from October 2008 through September 2009, the FS-28 treatment system treated 292 million gallons of groundwater and removed 0.4 pounds of EDB (which, although a seemingly small amount, is enough to put 3,600 Olympic-sized swimming pools at the MMCL). Since system startup in 1997, the system has treated 4.2 billion gallons of groundwater and removed 14.1 pounds of EDB (enough to put 128,000 Olympic-sized swimming pools at the MMCL). Mr. Tindall then showed several photographs, including the treatment plant, a discharge bubbler in the Coonamessett River, and the shallow well-point system. He also noted that the FS-28 costs for fiscal year 2009 were $615,000; the costs from 1997 through 2009 were $50 million; and the estimated cost to complete (from 2009 through 2038) is $22 million.

Mr. Tindall then began discussing the System Performance and Ecological Monitoring (SPEIM) Program by noting that after a thorough review and evaluation of treatment system components, remedial system optimizations were implemented over the past twelve months. The optimizations included packering off EW-1 (i.e., shortening the well screen) to focus extraction deeper in the aquifer and improve contaminant removal efficiency, but maintaining its 550-gpm flow rate. Mr. Tindall also noted that collected data indicate that EW-1 is effectively capturing the northern part of the plume.

Mr. Tindall also noted that because the groundwater model doesn't extend far enough south to allow effective simulation of EW-2, a pump test was performed there, which indicated that a flow rate of 50 gpm would be appropriate to contain and capture that portion of the plume. He reported that monitoring data show that EW-2 is successfully meeting that objective. He further noted that the shallow well-point system, which was shut down in December 2008, had been optimized multiple times, with each optimization having resulted in improved performance. Then, in order to obtain a better understanding of the footprint of the upwelling area, samples were collected in the shallow well-point area in 2008 and 2009 and it was concluded that the extent of contamination in the area was very limited and at very low concentrations, and that it would be inappropriate to continue to run the shallow well-points. And now that area is under long-term monitoring.

Mr. Tindall then showed a graph entitled "FS-28 Remedial System Influent EDB Concentration Trends," pointed out the concentration trends and fluctuations at EW-1, EW-2 and the shallow well-point system over time, and noted that influent concentrations have decreased overall. He also showed Figure 3a, entitled "EDB Concentration Trends in FS-28 Groundwater," and noted that there has been a significant decrease in concentrations in the northern monitoring wells over the past several years, and he pointed out the former plume delineation shown in black and the current plume delineation shown in red. He also mentioned that the IRP plumes are delineated to the drinking water standard, which is 0.02 µ/L in the case of EDB, and that the trailing edge of the FS-28 plume has advanced a "good distance" south.

Mr. Tindall then showed Figure 3b, noted that it focuses more on the main body of the plume, and pointed out a cluster of monitoring wells, just north of EW-1, where concentrations have decreased significantly. He said that the figure illustrates that the remedial system is doing a good job, and added that the plume also is attenuating quite significantly. Mr. Tindall then pointed out two wells where concentrations are still relatively high, around 1.3 to 1.4 µg/L, but noted that that portion of the plume is expected to be captured by EW-1 over the next several years.

Mr. Tindall also reported that more fluctuation in concentrations is seen at the leading edge lobes, as cranberry bog operations affect the flow field. He further noted that concentrations in wells near the shallow well-point system location have dropped quite a bit over the years, and that the wells in the deep leading edge lobe have shown some fairly significant fluctuation. He reminded the group that EW-2 is operating at 50 gpm, "cutting up the plume at this location," and he said that it's expected that the contamination located south of the well will continue to attenuate and upwell towards Pond 14, which is situated along the Coonamessett River. He then displayed a chart that numerically showed reductions at key indicator wells in the core of the plume near EW-1. Mr. Tindall also mentioned that concentrations in the shallow leading edge lobe are below the drinking water standard and therefore that lobe can no longer be defined and is not shown on the most recent plume maps.

Mr. Tindall continued with his presentation by showing a cross-section figure of the main body of the plume and pointed out Coonamessett Pond, the 100-plus feet of clean water above the plume, EW-1, the line depicting the former delineation of the plume, the line depicting the current delineation of the plume, and the trailing edge of the plume. He also noted that the plume is being cut off by the operation of EW-1, and pointed out how packering the well screen there improved efficiency. Mr. Tindall also showed a cross-section figure of the southern part of the plume and pointed out the deep leading edge lobe, EW-2, and the uncaptured portion of the plume that's discharging toward Pond 14.

Mr. Tindall then reviewed the "Conclusions" slide, which noted the following: groundwater monitoring data show a continued decline in EDB concentrations in the main body of the FS-28 EDB plume, resulting in an updated depiction of the plume boundary; the maximum detected EDB concentration in the main body of the plume is now 1.38 µg/L (decreasing from 2.54 µg/L in April 2007 and 2.89 µg/L in April 2006); monitoring data at monitoring well cluster 1303 (MW-1303) continue to indicate plume capture by EW-1; monitoring data indicate continued downgradient migration and attenuation of the deep leading edge plume lobe and an overall decline in EDB concentrations; no EDB MMCL exceedances were detected in wells selected to monitor the shallow lead edge plume lobe and therefore the shallow lobe is no longer depicted; and no EDB was detected in surface water samples collected in May, July, and September 2009, and therefore no cranberry sampling was required in 2009 and the fruit was harvested.

Mr. Tindall then showed a map of the new FS-28 plume boundary and displayed the "Recommendations/Next Steps" slide, which noted the following: continue monitoring under the SPEIM program (remedial system performance, plume cleanup progress, and Coonamessett River surface water); optimize when opportunities are identified; and continue the Private Well Verification Program. He reminded the group that the Private Well Verification Program comes under the LUCs program, and reported that 301 parcels have been identified in the FS-28 plume area, which has led to the identification of 59 private wells that will go through a technical evaluation to determine whether they could be affected by the plume. He further noted that residential wells in all MMR IRP plume areas are undergoing a similar evaluation.

Mr. Taylor inquired whether the EDB contamination is moving at the same rate or faster than groundwater. Mr. Tindall replied that it's essentially moving at the same rate. Mr. Taylor then asked if there is more than one well screen in MW-28A, which is located right where the plume upwells toward Pond 14. Mr. Tindall replied that there is one screen in that well, and he noted that vertical profiling was performed when the well was being drilled. Mr. Taylor asked when the well was drilled and Mr. Tindall replied that it was around 2005. He also said that the well was sampled several times subsequent to its being installed, and concentrations were right around the drinking water standard – one just below and two just slightly above. Mr. Taylor then asked how there's some level of comfort that the outline of the plume in that area is accurate. Mr. Tindall replied that clean water was found on either side of where contamination was detected, as well as above and below it. He also said that since it wasn't there in 2005, there is no reason to believe that the plume would be migrating deeper in the

aquifer in that area. Mr. Gonser added that the key point is that the groundwater would follow the path to upwell to the surface water.

Agenda Item #3. J-1 Range Source Area Update

Mr. Gregson noted that his presentation would be focused on two of the J-1 Range source areas: the Firing Point Area and the Interberm Area (IBA). He also informed that group that although the regulatory agencies were satisfied with the groundwater portion of the J-1 Range Remedial Investigation/Feasibility Study (RI/FS), they requested a revision of the source area portion that would more clearly represent all the work that was done over the past 12 years – a piece of which he will be presenting tonight. Mr. Gregson noted that information on the remaining J-1 Range source areas would be presented at the January MMRCT meeting, the entire J-1 Range RI/FS would be presented at the February meeting, and the Remedy Selection Plan (RSP), which is equivalent to the IRP's Proposed Plan, would be presented at the March meeting. He also mentioned that the source areas he would be discussing tonight are very complicated, and his presentation will be an executive summary type of overview of what has occurred at the sites.

Mr. Gregson showed an MMR plume map and pointed out the J-1 Range, the base boundary, the Forestdale neighborhood of the Town of Sandwich, the J-1 South plume and the J-1 North plume, and the radial pattern of the plumes, which, he explained, occurs because the J-1 Range is located on top of the groundwater mound. He also provided some background information about the J-1 Range: the range is about 600 feet wide by 6,000 feet long; it's located in the southeast part of the base; the firing point end is near the base boundary and the downrange end is near the Impact Area; it was used from the 1940s to the late 1980s; and in the World War II era it was used for military training and later was used by defense contractors for munitions testing and disposal of munitions and other materials by burial and burning. He also noted that the soil investigations conducted at the J-1 Range have yielded detections of explosives and propellants in soil believed to be the sources of the groundwater plumes associated with the range, and most of the explosives and propellants were found in disposal areas and burn pits on the range.

Mr. Gregson explained that for the purposes of investigation, the range was divided up into five sub-areas, including the Firing Point Area and the IBA. The sub-areas were determined based on history of range use, features at the range, and the conceptual site model. Ms. Jennings asked Mr. Gregson to point out on the figure being shown the areas from which the J-1 South and J-1 North plumes are emanating, which he did. He also noted that the J-1 South plume is an RDX plume that extends off base in a southeasterly direction and the J-1 North plume is an RDX and perchlorate plume that extends into the Impact Area. Mr. Gregson further noted that there's a great deal of geophysical data on the range, and the IAGWSP has collected numerous soil samples, investigated numerous anomalies, and found burial and burn pits, soil contamination, and what are believed to be most of the source areas.

Mr. Gregson reported that the J-1 Range Firing Point Area, which is located up-range, contains the following features: a suspected water-saw area, firing points 1 and 2, a mortar position, a range tower, a tunnel barrier, and a steel-plate target for a 100-meter range. He also noted that as a result of investigations of the area, a number of munitions-disposal pits were found.

Mr. Gregson then reviewed the J-1 Range Firing Point Area investigation findings at grids H0 through J2 and K2: the majority of items were range debris; all large anomalies were investigated and none indicated munitions burials; large anomalies that remain are primarily debris; clearance conducted did not suggest the presence of burials or widely distributed munitions items, as only range debris was recovered; the presence of uninvestigated munitions burials or munitions items is unlikely; and two locations with explosives detection in soil are being removed as part of ongoing soil removal actions.

He also showed a figure of this area and pointed out the water-saw location, the mortar position, a firing point, the tower, anomalies from the geophysical investigation, and soil sample locations.

Mr. Gregson reviewed J-1 Range Firing Point Area investigation findings at grids K1 through M2 and Location 59: the area was used for disposal; numerous munitions disposal pits were identified in this portion of the range; the majority of items, however, were munitions debris and range debris; munitions debris was identified in each of the grids and consisted of more than 1,000 inert 81mm and 60mm mortars and 105mm projectiles, hundreds of expended fuzes, and thousands of fuze parts and miscellaneous debris; and the munitions were recovered for disposal in the contained detonation chamber (CDC). He also showed a figure of this area, pointed out the magnetic anomalies, and noted that the investigation of them led to the discovery of burial pits.

Mr. Gregson reviewed J-1 Range Firing Point Area investigation findings at grids in rows 3 through 6: one disposal pit containing munitions, munitions debris, and other debris was identified in this portion; most of the large anomalies in this area were identified as concrete pad and large steel plates; and soils with RDX and HMX detections are being removed as part of ongoing soil removal actions. He showed a figure of this area as well and pointed out a berm with a tunnel barrier, a 100-meter target, and a series of steel plates.

Mr. Gregson showed a figure entitled "J-1 Range Firing Point Area (Rows 0 to 6) Potential Source Areas" and pointed out the upgradient portion of the J-1 South plume, the geophysical anomalies that were investigated and removed, a disposal/burn pit, and RDX detections in soil, which he noted line up well with the plume. He also said that the source of RDX appears to be the weapons that were tested and a large contribution (liquid debris) was from the water-saw that was used to cut munitions. He further noted that a 55-gallon drum/drainage structure that could have been part of the water-saw operation was also identified in that area. Mr. Gregson also reminded the group that the J-1 South plume contains only RDX, so it appears that no munitions containing perchlorate were used at that part of the range. He then showed a figure entitled "J-1 Range Firing Point Area (Rows 0 to 6) Existing Conditions Summary" and noted that the light blue shading represents areas that have been cleared of munitions, unexploded ordnance (UXO), and contaminated soil.

Ms. Jennings asked Mr. Gregson to explain why the area shown in gray hasn't been completely cleared yet. Mr. Gregson said that grids were excavated based on results from multi-increment soil (MIS) sampling. However, the grid to which Ms. Jennings referred did not show RDX levels above the cleanup target, and therefore was considered clean and wasn't excavated. He then showed a figure entitled "J-1 Range Firing Point Area (Rows 0 to 6) MIS Sampling Results" and explained that a number of MIS samples were collected to further define the source area of the plume and determine whether any actionable contamination remained. He reported that some actionable contamination areas were found, and those grids, shown in red, were excavated.

Ms. Jennings said that although there are many different potential source areas in the Firing Point Area, it was the soil-contaminated area in the middle, where the wet-saw had been located, that was the source of groundwater contamination for that part of the range. Mr. Gregson confirmed that that is what the IAGWP believes has happened. Ms. Jennings then said that one of Mr. Gregson's earlier slides noted that disposal areas were the most likely source areas; however, in actuality the wet-saw activity was the most likely source. She said that she thinks it's important to clarify this when writing up the report, and Mr. Gregson agreed to do so. Ms. Dolan added that a lot of the information about the sites comes from witness interviews conducted by the Army, and it's her understanding from these interviews that residue from the water-saw (which was used to cut solid rocket propellant) was brought up to the IBA, and the RDX-contaminated soil is either from burning of excess items or from artillery shells fired at target plates.

Mr. Dinardo inquired about the narrow extended area shown in blue on the figure entitled "J-1 Range Firing Point Area (Rows 0 to 6) Existing Conditions Summary." Mr. Gregson explained that that is the pathway by which access to the range is obtained, and it was cleared entirely to ensure safety going up and down the range.

Mr. Gregson continued his presentation by discussing the IBA, which is about half-way up the range, and includes the following features: firing point 3, a 1,000-meter berm, a 150-meter berm, a popper kettle (for disposal of munitions items) and wastewater discharge area, a cook-off test location (where munitions items were subjected to heat), a steel-lined pit, magnetic anomalies (including a buried tank and tank parts), and a potential burn area. Disposal areas identified as a result of investigations included: a burial trench, Polygon 16 (a burn pit), Polygons 7 through 15 (disposal and burn pits), and disposal pits in grids K38, J39, H37, H39, K36, J36, K38, and K34. Mr. Gregson explained that a polygon is an area of higher magnetic anomalies defined by a shape and identified for investigation. He then showed a figure of the IBA, pointed out the various features, and mentioned that the steel-lined pit and popper kettle are believed to be significant sources of groundwater contamination. He also noted that some investigations were conducted in the woods at the edge of the range, but for the most part only inert mortars were found there.

Mr. Gregson then reviewed the J-1 Range IBA findings: soils with explosives contamination associated with the steel-lined pit, popper kettle, wastewater discharge area, and Polygon 16 have been addressed: an area of RDX contamination in the IBA northeast of the 1,000-meter berm is being removed; multiple disposal pits were identified in the IBA, with the majority containing munitions debris and other debris, and some containing small quantities of explosives and propellants, with the concentrations of explosive compounds in soil excavated from the disposal pits being generally low; a technology demonstration using remotely operated equipment removed soil and munitions from the 1,000-meter, 150-meter, and 2,000-meter berms; it's unlikely that any subsurface burial pits remain; and individual munitions items identified in the IBA included both high explosive munitions and inert munitions with live fuzes; and it's possible that individual mortars might still remain within the IBA.

Mr. Gregson then displayed a figure entitled "J-1 Range Interberm Area (Rows 30 to 44) Probable Source Areas" and noted that the J-1 North plume points back to features in the IBA, including the steel-lined pit, the popper kettle, the wastewater discharge area, and other disposal areas. He also displayed a figure entitled "J-1 Range Interberm Area (Rows 30 to 44) Excavated Areas" as well as a figure entitled "J-1 Range Interberm Area (Rows 30 to 44) Existing Conditions Summary," and pointed out the roadway, two well pads, and areas of soil removal. He further noted that the IBA, which is one of the most complicated parts of the base as far as disposal and weapons testing history, is clearly a source of the J-1 North plume and the IAGWSP believes that it has found the items that were the major contributors to the plume. Mr. Gregson then displayed a figure entitled "J-1 Range Interberm Area (Rows 30 to 44) MIS Sampling Results" and noted that the areas shown in green represent samples that were nondetect and the areas shown in red represent samples that had significant concentrations of explosives or propellants and are being excavated.

Ms. Jennings asked Mr. Gregson to explain why it's thought unlikely that any burial pits remain in the area. Mr. Gregson replied that each magnetic anomaly above a certain signal strength was "physically dug," thereby providing evidence from the field on what each of the anomalies was – in some cases inert rounds were found, in other cases burn pits or disposal pits with associated soil contamination were found, and then excavated. In other words, every anomaly considered large enough to be a significant disposal pit was examined, and it's not thought that the smaller ones would represent something that would be a significant contributor to groundwater contamination. Ms. Jennings then asked if it will be possible to provide in the RI/FS report an estimate of the remaining munitions. Mr. Gregson replied that it will be possible to at least qualitatively say what types of rounds might remain, based on use of the range for testing purposes, and for training activities closer to the Impact Area.

Mr. Gregson then reviewed next steps: to provide the MMRCT with part two of the J-1 Range Source Area presentation at the January 2010 meeting (two fly-over areas and the 2,000-meter berm area); to prepare the J-1 Range RSP; to hold a public comment period on the plan in March 2010; and to prepare the J-1 Range Decision Document/Response to Comments.

Mr. Goddard asked if the RSP is expected to involve more digging. Mr. Gregson said that he thinks the RSP will indicate that all the required source removal work has been completed; however, it will also state what needs to be done for groundwater cleanup, as well as additional monitoring to ensure that sources have been removed.

Mr. Goddard also inquired about plans for future use of the ranges. Mr. Gonser replied that once cleanup activities have been completed and documented, the land will essentially be turned back over to the Massachusetts National Guard (the Guard), which will decide how the land will be used. He also said that although the land will not be used as a testing range again, he doesn't think the Guard has any plans right now for its use. Mr. Gonser further noted that from a drinking water standpoint, LUCs would still be in place after the land has been turned back over to the Guard, and any groundwater treatment plants would continue to operate.

Mr. Goddard asked if it's correct that the land will no longer be dangerous in terms of UXO. Mr. Gonser replied "right" and explained that this area is probably more closely scrutinized than the rest of the base and so it's probably better understood what likely remains there. He also noted that the Guard has to undergo a fairly extensive Department of Defense (DoD) process in order to use for any particular purpose a piece of terrain that's had munitions on it. Mr. Goddard recommended including information about the requirement for that process in the Decision Document, or including a statement that the land is going to be allowed to revert back to its natural state, should that be determined.

Ms. Rielinger referred to the figure entitled "J-1 range Interberm Area (Rows 30 – 44) MIS Sampling Results" and asked if the grids shown in red have already been excavated. Mr. Hill clarified that those grids are to be excavated. Ms. Rielinger also noted that there are soil sample locations depicted in red outside of the red grids, and asked where the soil samples came from. Mr. Gregson replied that the soil samples were composite samples of each entire grid. And if outlined in green, they were below the applicable cleanup standards for the contaminants detected. Mr. Field asked if it's correct that red indicates a detection, but not necessarily one above the cleanup standard. Mr. Gregson replied that red means "above an action level." Mr. Gonser added that the figure also shows "a bunch of green squares" that have been excavated and he noted that discrete sampling was the method used previously. He further noted that MIS sampling is believed to result in a better representation of actual conditions, and the feeling is that the isolated detections to which Ms. Rielinger referred don't really represent significant contamination. Mr. Field observed that the figure includes data from both the old and new sampling methods.

Mr. Hill stated that the figure entitled "J-1 Range Interberm Area (Rows 30 to 44) Existing Conditions Summary" shows what's actually left; that is, the soil samples represented by red symbols have not been removed. He also said that during the anomaly excavation work, the material that was excavated was taken off site, and he noted that the ongoing excavation is based on the MIS sampling that was done recently, although many small-scale excavations have occurred over the past ten years, mostly in conjunction with anomaly investigations. He further noted that approximately 935 cubic yards of material was removed from the J-1 Range prior to 2009. Ms. Jennings said that she thinks it's important to clarify in the final report what has and has not been removed, as the current figure is "a little misleading because it makes it look like they might still be there." Mr. Hill noted that there is a figure that includes sample labels for everything that has been removed from the site. Mr. Goddard suggested that leaving anything that's been excavated on the figures would just confuse people. Ms. Jennings remarked that the IAGWSP deserves credit for this "incredible undertaking" of compiling

reports that cover numerous phases of work that's been done. Mr. Hill confirmed that ten years worth of data were collected before anything was written up.

Agenda Item #4. J-2 System Performance Monitoring Results

Mr. Gregson stated that there are two RDX and perchlorate plumes emanating from the J-2 Range (which is north of the J-1 Range): the J-2 North plume, which is migrating north, and the J-2 East plume, which is migrating north/northeast. He noted that the J-2 Range is approximately 600 feet wide by 3,500 feet long and was used from the mid 1940s to late 1980s, initially for training activities during the World War II era, and later for defense contractor munitions testing and disposal of munitions and other materials by burial and burning. Mr. Gregson also noted that a fairly large source area for the J-2 North plume was removed as part of a thermal treatment project several years ago, and the IAGWSP is now dealing with the groundwater plume that was left behind. Soil investigations have been conducted and it's been determined that disposal areas are the most likely source of groundwater contamination for the J-2 North plume. Also, the firing of 30mm projectiles is thought to have contributed to the source for the J-2 East plume.

Mr. Gregson reported that at the J-2 North plume the current maximum concentrations are 4 parts per billion (ppb) for RDX and 17 ppb for perchlorate. The J-2 North treatment system, which has been operating since September 2006 and consists of three extraction wells pumping a total of 375 gpm, has treated approximately 600 million gallons of groundwater. Current maximum concentrations in the J-2 East plume are 13.6 ppb for RDX and 48.7 ppb for perchlorate. The J-2 East treatment system, which has been operating since October 2008 and consists of three extraction wells pumping a total of 425 gpm, has treated approximately 230 million gallons of groundwater.

Mr. Gregson then displayed a slide entitled "J-2 North Plume Monitoring Results Perchlorate," which noted that: some upgradient wells have had consistent detections over time, while others have decreased or increased; concentrations at mid-plume wells have decreased or increased; concentrations at wells upgradient of EW-3 have increased or fluctuated; and concentrations at downgradient wells have been consistent. Mr. Gregson then showed a figure entitled "J-2 Range North Perchlorate in Groundwater," pointed out the source area to the south, and noted that the plume was of special concern because it was moving toward the water supply wells for the on-base Upper Cape Water Cooperative system. He also pointed out the monitoring wells where concentrations are generally decreasing, where they're "flat-lining," and where they're fluctuating. He then displayed a series of graphs showing perchlorate trends at J-2 North upgradient, mid-plume, and downgradient. He also displayed a cross-section figure of the plume and pointed out the monitoring wells, extraction wells, and the downgradient water supply wells and their zone of contribution.

Mr. Gregson reviewed a slide entitled "J-2 North Perchlorate Plume Insights," which noted that: the plume has narrowed slightly; the maximum concentration has decreased; and the plume is slightly deeper near EW-1. Ms. Jennings inquired about the past maximum perchlorate concentration and the current maximum concentration. Ms. Richardson said that she believes that perchlorate concentrations had been greater than 100 ppb, perhaps as high as 149 ppb, but as of last week the maximum concentration was 17 ppb.

Mr. Gregson then continued his presentation by discussing the J-2 North plume RDX results, the slide for which noted that concentrations had increased (from 4 ppb to about 15 ppb in one well, upgradient of an extraction well) or been consistent in upgradient monitoring wells and increased at one well and decreased to nondetect at all others downgradient. Mr. Gregson also showed a map of the J-2 North RDX plume, noted that the RDX is not as far downgradient as the perchlorate, and pointed out the extraction well at the toe of the plume, which is expected to clean up the bulk of the RDX portion of the plume. He then showed a cross-figure of the RDX plume and reviewed the "J-2 North RDX Plume Insights" slide: the plume is much smaller than previously depicted, and is slightly deeper at EW-1.

Mr. Gregson reviewed the slide entitled "J-2 North Plant Performance," which noted the following: three extraction wells are operating at 375 gpm; the two mobile treatment units (MTUs) at Wood Road (EW-1 and EW-2) have maintained 98.48% availability from September 2007 through August 2008; breakthrough in ion exchange resin (IX) at the MTUs was detected in December 2007 and August 2008, and the IX was exchanged in January 2008 and September 2008 respectively; the Wood Road portion of the system treated 116 million gallons during the reporting period and a total of 248 million gallons to date; the extraction well at Jefferson Road (EW-3), which is associated with a permanent treatment plant building at the toe of the plume, maintained 98.86% availability, required no IX or granular activated carbon (GAC) exchanges, and treated 61 million gallons of groundwater during the reporting period and 124 million gallons to date. Mr. Gregson also noted that influent concentrations at Wood Road have been steady at about 10 ppb for perchlorate and at about 1.5 ppb at the other treatment plant.

Ms. Jennings mentioned that in the cross-section there appears to be a concentration of about 200 ppb, but perhaps it's between monitoring wells. Mr. Gregson replied that it's important to keep in mind that the maximum concentrations being discussed are those detected at monitoring wells, while it's quite possible that higher or lower concentrations exist between monitoring wells. He then showed a graph entitled "J-2 North Cumulative Mass Removal" and noted that the bulk of the plume is perchlorate.

Mr. Gregson then reviewed the "J-2 North Next Steps" slide: no changes to system operation; propose changes to chemical and hydraulic monitoring networks; issue monitoring plan addendum with these changes; and maintain a schedule for sampling and develop an annual report after September 2009 chemical and hydraulic sampling events.

Mr. Goddard asked Mr. Gregson to point out the location of the permanent treatment plant. Mr. Gregson displayed a map and pointed out the treatment plant at Jefferson Road.

Mr. Gregson then continued his presentation with a discussion about the J-2 East plume by showing the slide entitled "J-2 East Chemical Monitoring Activities" and noting that an interim sampling round (38 wells) was conducted from March through May 2008 and an interim semiannual sampling round (20 wells) was conducted from September through November 2008. He also displayed a map entitled "J-2 Range East Perchlorate in Groundwater," noted that the J-2 East treatment system consists of three extraction wells and four MTUs (one upgradient, two mid-plume, and one at the toe of the plume), and he remarked that the plume is a bit complicated in that it involves several lobes. He noted that the western lobe has very low perchlorate concentrations, perchlorate concentrations at the eastern lobe fluctuate between 17.4 and 7.9 ppb and nondetect downgradient, and the far eastern lobe has had decreases to nondetect and to 1.1 ppb.

Mr. Gregson noted that in the main lobe, where the treatment plant is located, monitoring at upgradient, mid-plume, and downgradient monitoring wells has shown some increases, some decreases, and some consistent perchlorate results. He also noted that the highest perchlorate concentration seen mid-plume in the main lobe was about 60 ppb. Mr. Gregson then showed a figure depicting the current outline of the plume and he pointed out the outer lobes.

Mr. Gregson showed the slide entitled "J-2 East Perchlorate Plume Insights," which noted the following: the conceptualization of the plume has been revised slightly (high concentrations are within the core of the plume, above and below some low-hydraulic-conductivity units; the maximum concentration has increased slightly; and the plume is slightly narrower); concentrations in the western lobe continued to decrease; concentrations in the far eastern lobe have decreased; the upgradient portion of the plume has had decreases and consistent results; and the downgradient monitoring wells remain nondetect.

Mr. Gregson then reported that the J-2 East RDX plume has a larger footprint than the J-2 North RDX plume. He showed a figure of the J-2 East RDX plume and noted that: concentrations in the western

lobe have dropped to nondetect; concentrations in the upgradient portion of the main lobe have decreased or stayed consistent; concentrations mid-plume have increased or stayed consistent; and concentrations downgradient have decreased or increased. He then showed several graphs illustrating the J-2 East RDX trends. He also displayed a cross-section figure of the RDX plume and pointed out the lower-hydraulic-conductivity units he had mentioned earlier.

Mr. Gregson then reviewed "J-2 East RDX Plume Insights," as follows: the western lobe is no longer depicted because concentrations have dropped below the detection limit; concentrations in wells beneath the source area have decreased to nondetect; the maximum concentration remains the same, about 14 ppb; the higher concentrations are located in the core of the plume; the plume is not continuous downgradient of EW-5; and the concentrations at MW-399 have decreased to below 0.6 ppb.

Mr. Gregson then reported on influent concentrations at the MTUs, which have been operating since October 2008. He noted that influent concentrations at the upgradient MTU, which has treated approximately 21 million gallons of groundwater, are about 4 ppb for perchlorate and 1.4 ppb for RDX. Influent concentrations at the paired mid-plume MTUs, which have treated approximately 51 million gallons of groundwater, are about 3 ppb for perchlorate and slightly more than 2 ppb for RDX. Influent concentrations at the downgradient MTU, which has treated about 31 million gallons of groundwater, are 1 ppb for perchlorate and 0.6 ppb for RDX. Mr. Gregson also reviewed the "J-2 East Next Steps" slide: no changes to system operation are planned; some minor changes are being proposed to the chemical and monitoring network; a monitoring plan addendum with these changes will be issued; the chemical and hydraulic sampling schedule will be maintained; and the system will continue to be operated.

Mr. Goddard asked Mr. Gregson to point out on the map the location of the J-2 East MTUs, which he did. Mr. Goddard then recommended that future diagrams include labeling of MTUs. Mr. Goddard also asked why some extraction well symbols on the maps are shown in yellow while others are shown in red. Ms. Jennings explained that the symbols are color-coded according to the detection at the well.

Mr. Goddard also asked if the high concentrations below the low-hydraulic-conductivity unit would be treatable, or if they would remain trapped there. Mr. Hill said that the extraction well is actually screened both above and below the low-hydraulic-conductivity sections. Mr. Gregson added, however, that it is predicted that the contaminants within the low-hydraulic-conductivity unit will take longer to clean up, as has been seen in other plumes in other areas.

Ms. Jennings noted that in cross-section it appears that EW-6 is screened well below where the RDX plume is located. She then asked if the capture zone of that well is significant enough to achieve full containment of the RDX plume. Mr. Hill replied that although he would have to double-check with the modelers, he believes that what's upgradient of the extraction well would be captured, with just a small amount of RDX not being captured, but attenuating before it gets very far downgradient from the well. Ms. Jennings said that she would like to see the capture zone of that extraction well at a future Technical Meeting.

Agenda Item #5. Next Meeting Schedule and Adjourn

Mr. Goddard acknowledged that he had arrived late to the meeting and asked Ms. Curley to repeat the information she'd shared earlier about the proposed community outreach document(s), which she did. Mr. Goddard then noted that he is in favor of a combined document that contains information about both cleanup programs. He also said that he'd like the document to contain a chart that clearly conveys the status of each site. Mr. Goddard also asked whether distribution would include the newspapers. Ms. Curley replied that the plan is not to distribute a document through the newspapers, but to make copies available at the libraries and post it on the IRP and IAGWSP websites.

Mr. Goddard then inquired about the status of the IAGWSP's Community Involvement Plan (CIP). Ms. Curley noted that the IRP's CIP Addendum is currently under regulator review; however, the IAGWSP is not at the same point as the Air Force's cleanup program and does not expect to publish an updated CIP until later next year. Ms. Jennings added that at this time the IAGWSP is working on a number of other products related to the decision-making process, with much of the community involvement staff dealing with decision documents, fact sheets, and the like. She explained that the U.S. Environmental Protection Agency (EPA) is willing to allow the IAGWSP to postpone updating its CIP while the effort is being focused on writing documents related to decision-making. Ms. Jennings further noted, however, that if Mr. Goddard or anyone else thinks that a CI activity is being neglected because the CIP document hasn't been updated, they should notify the project managers, who can ensure that the activity is completed. Mr. Goddard said that what's important to him is that the CI activities associated with the IRP are carried on by the IAGWSP.

Mr. Field stated that the MMRCT would meet next on Wednesday, January 13, 2010. He then adjourned the meeting at 8:09 p.m.